

# (12) UK Patent Application (19) GB (11) 2 301 512 (13) A

(43) Date of A Publication 04.12.1996

(21) Application No 9510908.8

(22) Date of Filing 30.05.1995

(71) Applicant(s)

Hong Technical Enterprise Co., Ltd

(Incorporated in Taiwan)

No. 26, Fan-Tzu Yuan, Chu-Men Village, Pal-Ho Town,  
Tainan Hsien, Taiwan

(72) Inventor(s)

Shu-Ying Chen

(74) Agent and/or Address for Service

Boult Wade Tennant

27 Fumival Street, LONDON, EC4A 1PQ,  
United Kingdom

(51) INT CL<sup>6</sup>  
H04N 5/65

(52) UK CL (Edition O )  
H4T TAFE

(56) Documents Cited

EP 0506346 A2 EP 0385037 A2 EP 0331349 A2  
WO 93/14598 A1 WO 92/08317 A1 US 4712870 A  
US 4577928 A

(58) Field of Search

UK CL (Edition N ) H4T TAFE  
INT CL<sup>6</sup> H01J 29/86 29/89 , H04N 5/65 5/72  
ONLINE: WPI, JAPIO, CLAIMS

## (54) A pivotable protective screen frame structure

(57) The protective screen frame structure comprises front and rear clamping frames 31, 32, left and right pivot blocks 33, 34, a connecting plate 35, two fixing plates 36 and a protective screen 3. The protective screen 3 can be freely pivoted upward to an inclined position above the screen of the television or computer monitor for easily clearing the dust thereon. Also, the inner face of the protective screen 3 facing the screen of the television or monitor can be easily wiped and cleaned. The two fixing plates 36 can be rotated according to the shape and curvature of the top face of the television or monitor so as to be snugly attached thereto.

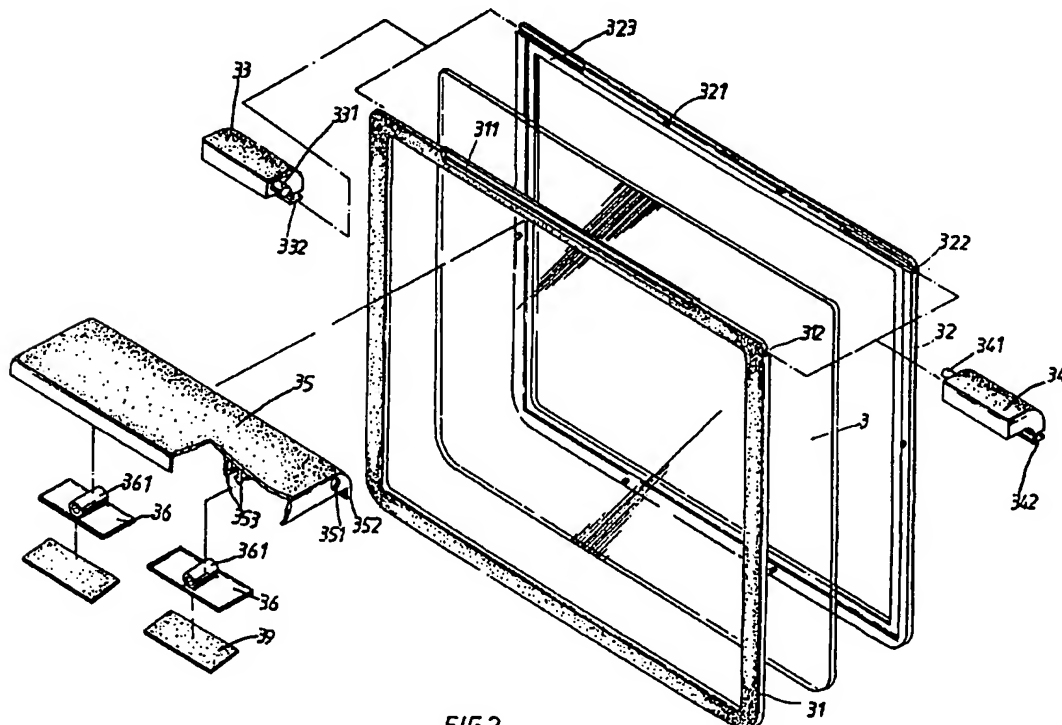


FIG 2

Best Available Copy

GB 2 301 512 A

1/6

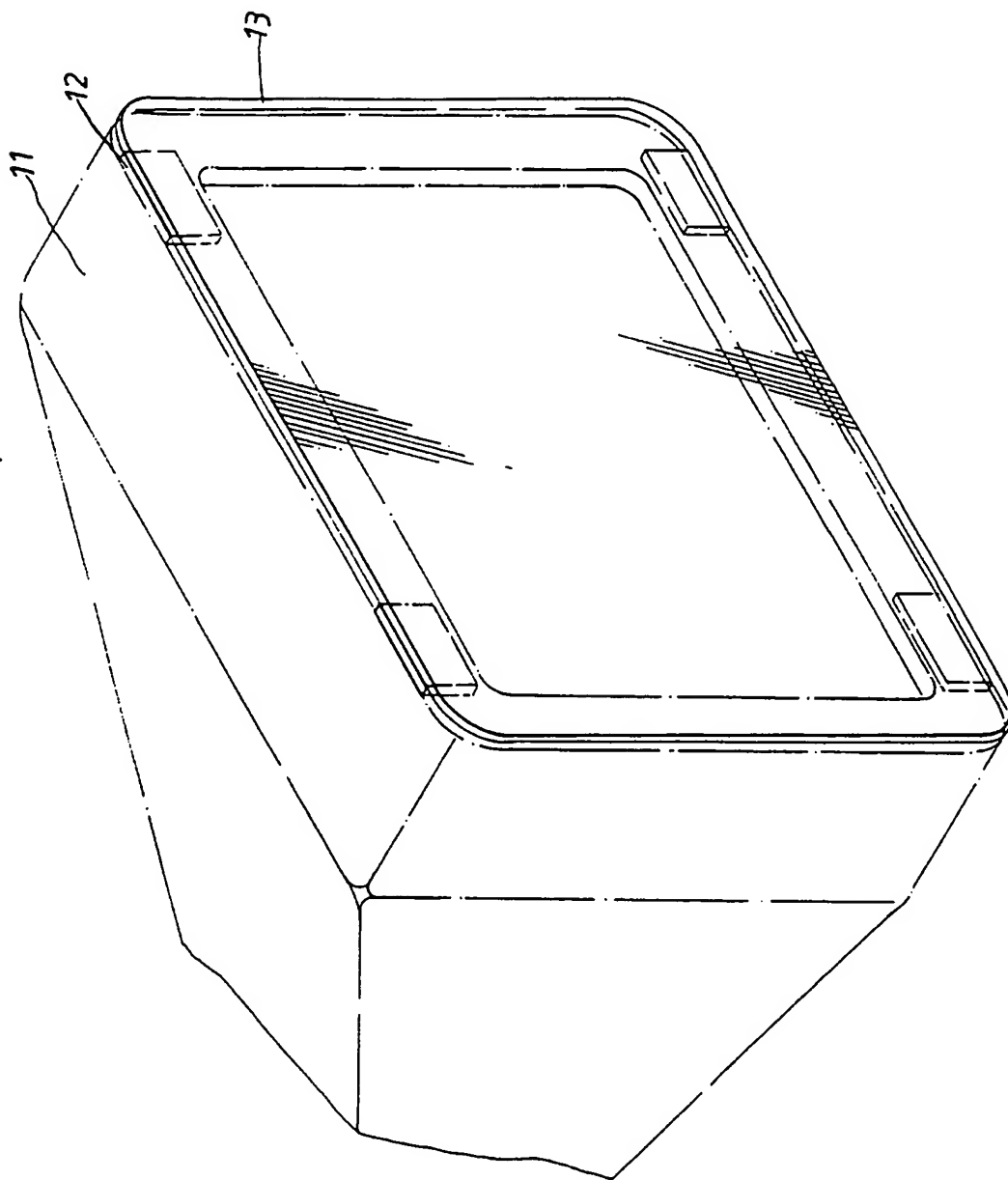
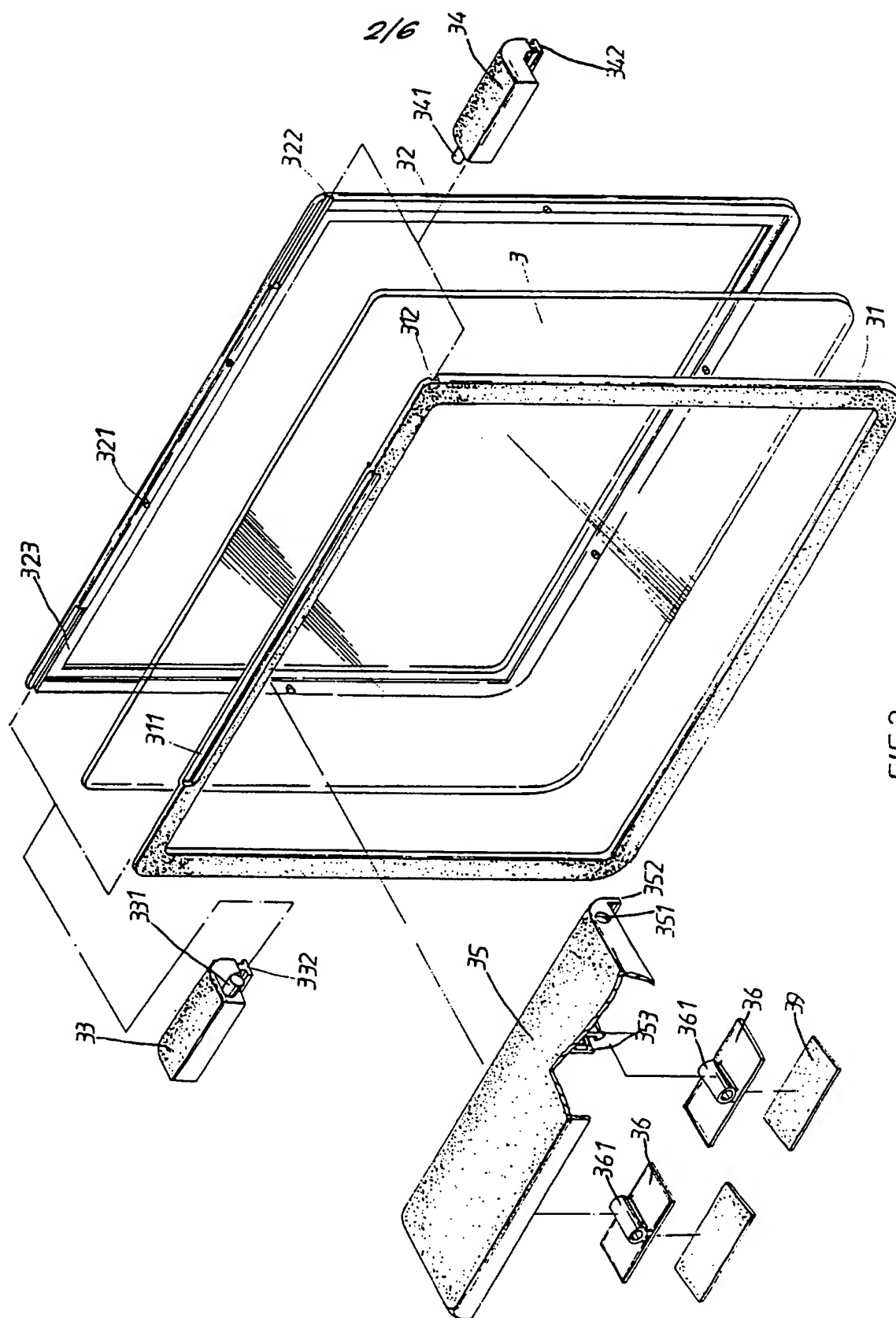


FIG. 1



3/6

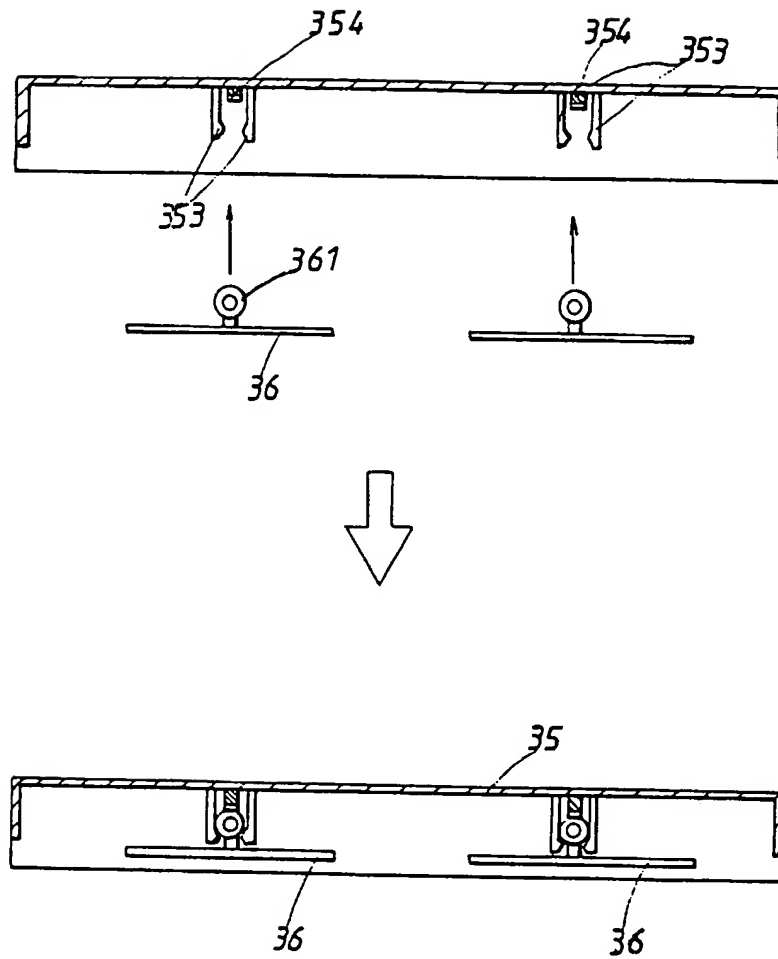
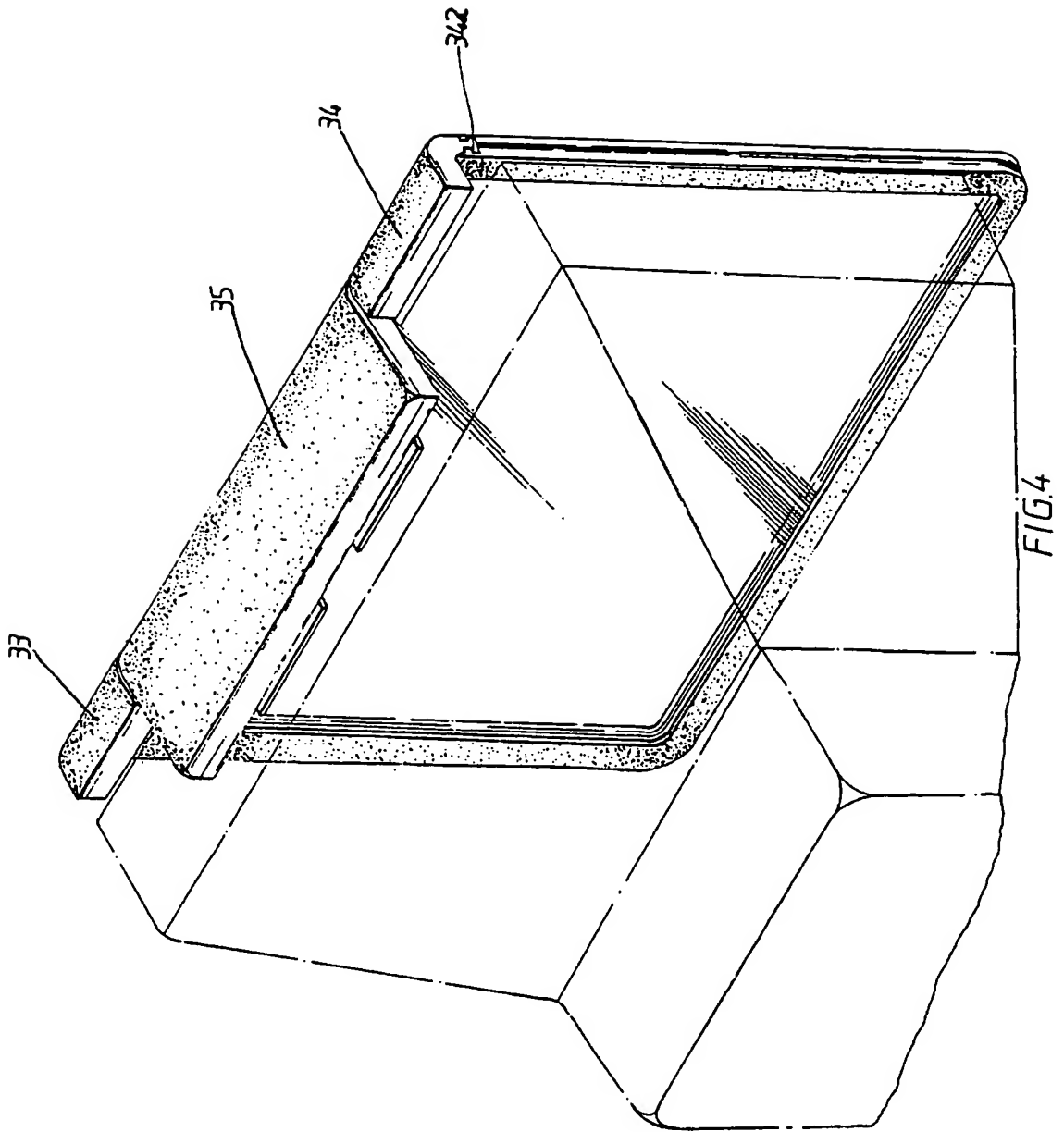


FIG.3



5/6

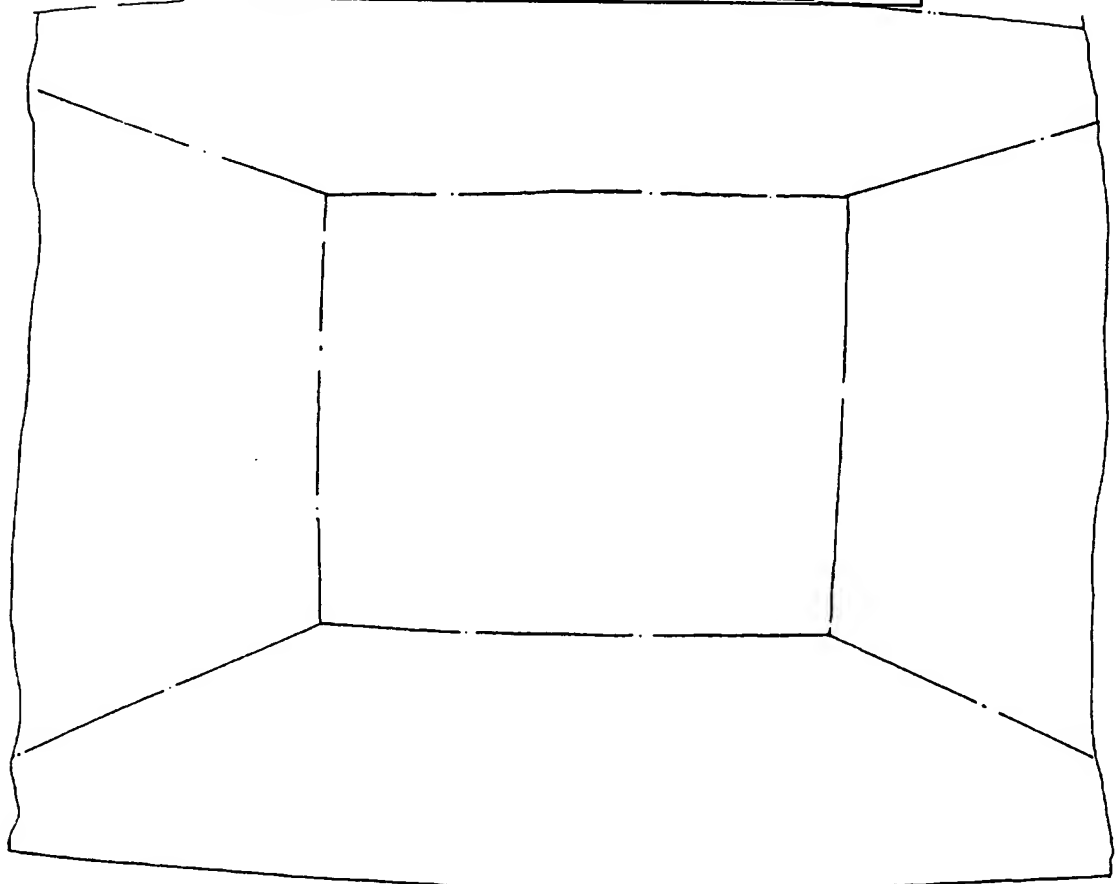
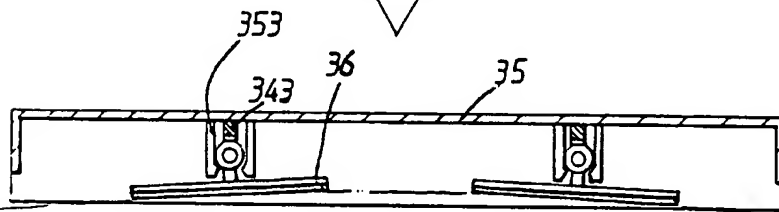
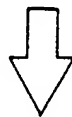
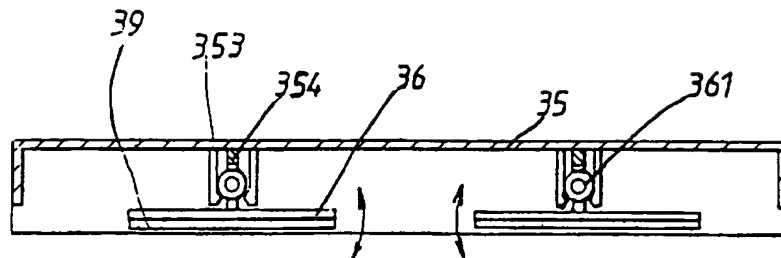


FIG. 5

6/6

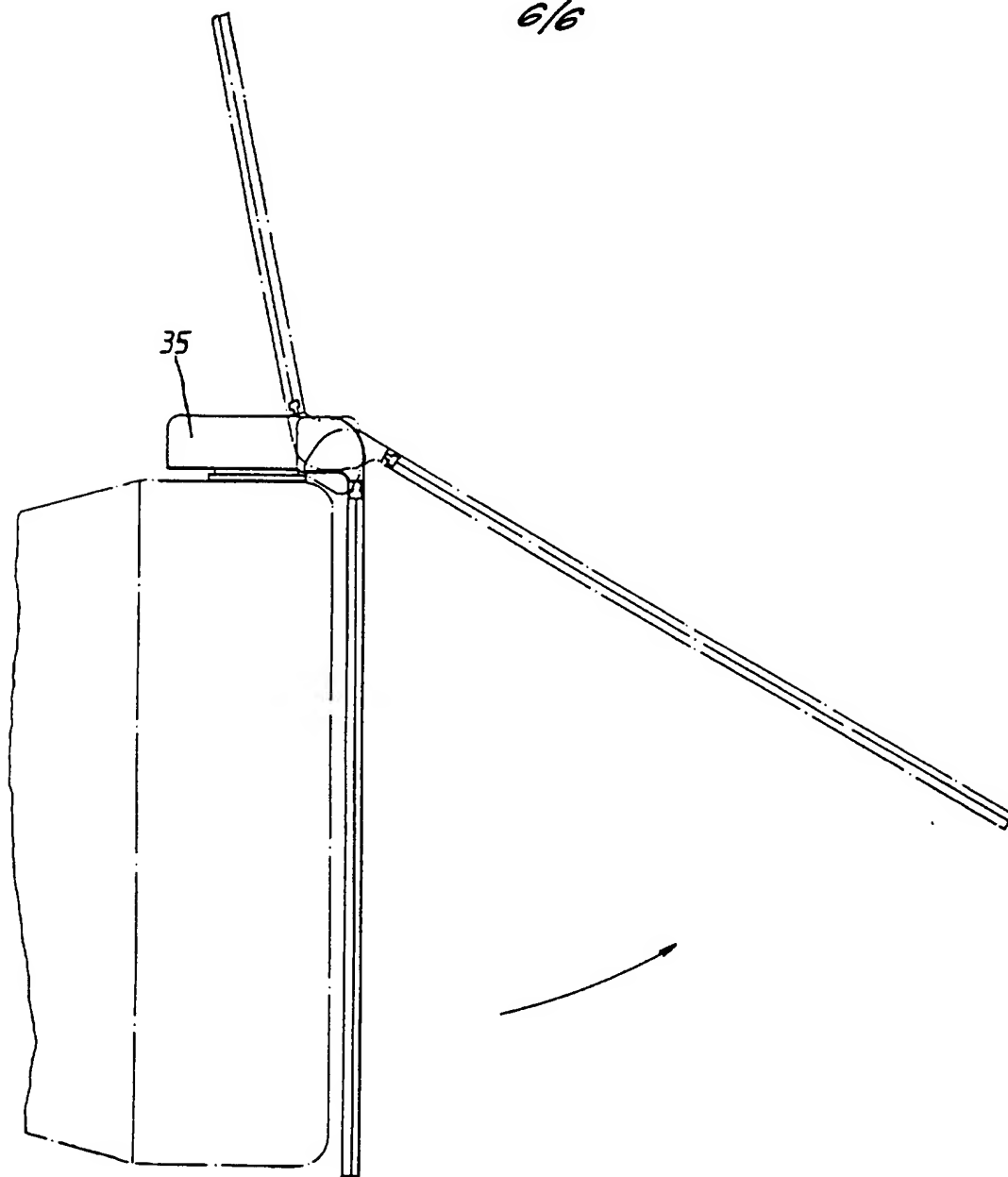


FIG.6

- 1 -

## A PROTECTIVE SCREEN FRAME STRUCTURE

The present invention relates to a protective screen frame structure in which the protective screen can be freely pivoted upward to an inclined position above the screen of a television or computer monitor for easily clearing the dust thereon. Also, the inner face of the protective screen facing the screen of the television or monitor can be easily wiped and cleaned. The fixing plates of the protective screen can be also rotated according to the shape and curvature of the top face of the television or monitor so as to be snugly attached thereto.

A protective screen is positioned in front of the screen of a television or a computer monitor for stopping the radiation from being radiated into human eyes. The conventional protective screen 13 is disposed in such a manner that a double-face adhesive paper 12 is attached to a back face of the protective screen for fixing the same on the television or the monitor 11 in front of the screen thereof as shown in Fig 1. According to such arrangement, several shortcomings exist as follows:

1. After attached to and fixed on the television or monitor, the protective screen cannot be easily removed. Therefore, in the case that the screen of the television or the monitor or the protective screen itself is contaminated by dust after a period of use, the protective screen cannot be easily detached from the television or monitor for cleaning.

2. The top face of the television or monitor is usually not a plane face and has a curvature, so that the protective screen often cannot be snugly fixed thereon.

Therefore, it is necessary to provide an improved protective screen frame structure which enables the



protective screen to be easily removably and snugly fixed on the top face of the television or the computer monitor.

It is therefore a primary object of the present invention to provide a protective screen frame structure in which the protective screen can be freely pivoted upward to an inclined position above the screen of a television or computer monitor for easily clearing the dust thereon. Also, the inner face of the protective screen facing the screen of the television or monitor can be easily wiped and cleaned.

It is a further object of the present invention to provide the above protective screen frame structure in which the fixing plates of the protective screen can be rotatably adjusted according to the shape and curvature of the top face of the television or monitor so as to be snugly attached thereto by double-face adhesive papers.

The present invention provides a protective frame structure for supporting a protective screen in front of a screen of a television or a computer monitor, the protective screen structure comprising:

- a frame for a protective screen,
- an attachment means attachable to a surface of the television or the computer monitor, and
- first pivot means connecting the frame for the protective screen to the attachment means.

The protective screen can be advantageously freely pivoted upward to an inclined position above the screen of the television or computer monitor for easily clearing the dust thereon. Also, the inner face of the protective screen facing the screen of the television or monitor can be easily wiped and cleaned as shown in Fig 6.

Preferably the attachment means comprises a first member connected to the first pivot means, a second member engagable with the surface of the television or the computer monitor and second pivot means connecting

the first member of the attachment means to the second member of the attachment means.

The top face of the screen of the television or monitor is usually not a straight plane, that is it may be an arched face. Under such circumstances, the second member can be rotated to be snugly attached to the arched face.

Preferably the second member of the attachment means is a fixing plate and adhesive means is provided on the fixing plate for adhering the fixing plate to the surface of the television or the computer monitor.

Preferably the adhesive means comprises a double-faced adhesive film with one side adhered to the fixing plate and the other adherable to the surface of the television or the computer monitor.

Preferably the first pivot means comprises a pivot block provided on the frame, an aperture in one of the pivot block or the attachment means and a protrusion extending from the other of the pivot block or the attachment means and engagable in the aperture.

In a second aspect the present invention provides a protective screen frame structure comprising front and rear clamping frames, left and right pivot blocks, a connecting plate, two fixing plates and a protective screen, said frame structure being characterized in that:

the front clamping frame is rectangular and disposed with a locating channel on an upper side, two ends of the locating channel being formed with guide grooves;

the rear clamping frame is formed with multiple fixing bosses and two guide grooves at two ends of an upper side thereof, a recess portion being formed along an inner periphery of the rear clamping frame;

the left pivot block is provided with a lateral pivot shaft and a lower T-shaped rail;

the right pivot block is provided with a lateral pivot shaft and a lower T-shaped rail;

the connecting plate is formed with two pivot holes on two lateral sides and a stopper flange extending downward from a rear side thereof, two pairs of opposed engaging plates being disposed under a lower face of the connecting plate, an engaging section being disposed between each pair of engaging plates,

the fixing plates are each provided with a sleeve member, and when the protective screen frame structure is assembled,

the protective screen is positioned on the recess portion of the rear clamping frame and then the front and rear clamping frames are tightly pressed toward and associated with each other with the fixing bosses of the rear clamping frame inserted into corresponding insertion holes of the front clamping frame so that the protective screen is sandwiched between the front and rear clamping frames and so that the guide grooves of the front and rear clamping frames define at least one T-shaped socket;

the T-shaped rails of the left and right pivot blocks are inserted into the at least one T-shaped socket;

the pivot shafts of the left and right pivot blocks are fitted into the pivot holes of the connecting plate;

the stopper flange of the connecting plate abuts against the locating channel of the front clamping frame to prevent the front clamping frame from further inwardly swinging;

two double-face adhesive papers are attached under the two fixing plates; and

the sleeve members of the fixing plates are fitted between the engaging plates to abut against the engaging sections of the connecting plate.

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings, wherein:

Fig. 1 is a perspective view of a conventional protective screen disposed on a television or a computer monitor;

Fig. 2 is a perspective exploded view of the present invention;

Fig. 3 is a sectional view showing that the fixing plates are rotatably fitted into the engaging plates of the connecting plate of the present invention;

Fig. 4 is a perspective view showing that the protective screen frame structure of the present invention is pivotably fixed on the television or monitor by means of the connecting plate;

Fig. 5 is a sectional view showing that the fixing plates are rotated according to the curvature of the top face of the television or monitor so as to be snugly attached thereto; and

Fig. 6 is a side view showing that the protective screen can be pivoted upward to an inclined position above the television or monitor.

Please refer to Fig. 2. The present invention mainly includes a front and a rear clamping frames 31, 32, a left and a right pivot blocks 33, 34, a connecting plate 35, two fixing plates 36 and a protective screen 3.

The front clamping frame 31 is rectangular and a locating channel 311 is disposed on its upper side. Two ends of the locating channel 311 are formed with guide grooves 312.

The rear clamping frame 32 is formed with multiple fixing bosses 321 on each side and two guide grooves 312 at two ends of an upper side thereof. In addition, a recess portion 323 is formed along an inner periphery of the rear clamping frame 32.

The left pivot block 33 is disposed with a lateral pivot shaft 331 and a lower T-shaped rail 332. The right pivot block 34 is disposed with a lateral pivot shaft 341 and a lower T-shaped rail 342.

The connecting plate 35 is formed with two pivot holes 351 on two lateral sides and a stopper flange 352 extending downward from a rear side thereof. In addition, two pairs of opposed engaging plates 353 are disposed under the lower face of the connecting plate 35. An engaging section 354 (see Figure 5) is disposed between each pair of engaging plates 353. Each fixing plate 36 is provided with a sleeve member 361.

Referring to Figs. 2, 3, 4 and 5, when assembled, the protective screen 3 is positioned on the recess portion 323 of the rear clamping frame 32 and then the front and rear clamping frames 31, 32 are tightly pressed toward and associated with each other with the fixing bosses 321 of the rear clamping frame 32 inserted into corresponding insertion holes of the front clamping frame 31 so that the protective screen 3 is sandwiched between the front and rear clamping frames 31, 32. Thereafter, the guide grooves 312, 322 of the front and rear clamping frames 31, 32 define a T-shaped socket. The connecting plate 35 is positioned into the locating channel 311 and then the T-shaped rails 332, 342 of the left and right pivot blocks 33, 34 are inserted into the T-shaped sockets defined by the two clamping frames 31, 32. The pivot shafts 331, 341 of the left and right pivot blocks 33, 34 are fitted into the pivot holes 351 of the connecting plate 35. At this time, the stopper flange 352 of the connecting plate 35 abuts against the locating channel 311 of the front clamping frame 31 and the front clamping frame 31 is prevented from further inward swinging. Before the connecting plate 35 is positioned into the locating channel 311, two double-face adhesive papers 39 are attached one each under the two fixing plates 36 and the sleeve members 361 of the fixing plates 36 are fitted one each between the engaging plates 353 to abut against the engaging sections 354 of the connecting plate 35.

The advantages of the present invention are as follows:

1. The protective screen can be freely pivoted upward to an inclined position above the screen of the television or computer monitor for easily clearing the dust thereon. Also, the inner face of the protective screen facing the screen of the television or monitor can be easily wiped and cleaned as shown in Fig. 6.

2. The top face of the screen of the television or monitor is usually not a straight plane, that is, may be an arch face. Under such circumstance, the two fixing plates can be rotated about the sleeve members according to the arch face so as to be snugly attached to the arch face.

The above embodiment is only an example of the present invention and the scope of the present invention should not be limited to the example. Any modification or variation derived from the example should fall within the scope of the present invention.

**CLAIMS**

1. A protective screen frame structure for supporting a protective screen in front of a screen of a television or a computer monitor, the protective screen structure comprising:

a frame for a protective screen,

an attachment means attachable to a surface of the television or the computer monitor, and

first pivot means connecting the frame for the protective screen to the attachment means.

2. A protective screen frame structure as claimed in Claim 1 wherein the attachment means comprises a first member connected to the first pivot means, a second member engagable with the surface of the television or the computer monitor and second pivot means connecting the first member of the attachment means to the second member of the attachment means.

3. A protective screen frame structure as claimed in Claim 2 wherein the second member of the attachment means is a fixing plate and adhesive means is provided on the fixing plate for adhering the fixing plate to the surface of the television or the computer monitor.

4. A protective screen structure as claimed in Claim 3 wherein the adhesive means comprises a double-faced adhesive film with one side adhered to the fixing plate and the other adherable to the surface of the television or the computer monitor.

5. A protective screen strcuture as claimed in any one of the preceding claims wherein the first pivot means comprises a privot block provided on the frame, an aperture in one of the pivot block or the attachment means and a protrusion extending from the other of the pivot block or the attachment means and engageable in the aperture.

6. A protective screen frame structure comprising front and rear clamping frames, left and right pivot blocks, a connecting plate, two fixing plates and a protective screen, said frame structure being characterized in that:

the front clamping frame is rectangular and disposed with a locating channel on an upper side, two ends of the locating channel being formed with guide grooves;

the rear clamping frame is formed with multiple fixing bosses and two guide grooves at two ends of upper side thereof, a recess portion being formed along an inner periphery of the rear clamping frame;

the left pivot block is provided with a lateral pivot shaft and a lower T-shaped rail;

the right pivot block is provided with a lateral pivot shaft and a lower T-shaped rail;

the connecting plate is formed with two pivot holes on two lateral sides and a stopper flange extending downward from a rear side thereof, two pairs of opposed engaging plates being disposed under a lower face of the connecting plate, an engaging section being disposed between each pair of engaging plates;

the fixing plates are each provided with a sleeve member, and when assembled;

the protective screen is positioned on the recess portion of the rear clamping frame and then the front and rear clamping frames are tightly pressed toward and associated with each other with the fixing bosses of the



rear clamping frame inserted into corresponding insertion holes of the front clamping frame so that the protective screen is sandwiched between the front and rear clamping frames and so that the guide grooves of the front and rear clamping frames define a T-shaped socket;

the T-shaped rails of the left and right pivot blocks are inserted into the T-shaped sockets;

the pivot shafts of the left and right pivot blocks are fitted into the pivot holes of the connecting plate;

the stopper flange of the connecting plate abuts against the locating channel of the front clamping frame to prevent the front clamping frame from further inward swinging;

two double-faced adhesive papers are attached under the two fixing plates; and

the sleeve members of the fixing plates are fitted between the engaging plates to abut against the engaging sections of the connecting plate.

7. A protective screen structure substantially as hereinbefore described with reference to and as shown in the Figures 2 to 6 of the accompanying drawings.

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**